



REPORT

OF THE

Indian Tariff Board

ON THE

CALCIUM CHLORIDE INDUSTRY

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PERSONNEL OF THE BOARD

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REPORT ON THE CALCIUM CHLORIDE INDUSTRY

1. Early in 1940 Government had announced that specified industries promoted by their direct encouragement during wartime

Preliminary. might feel assured that, if they were conducted on sound business lines, they would be protected against unfair competition from outside by such measures as Government might devise. In accordance with this decision, calcium chloride was one of the industries which was given an assurance of protection against unfair competition after the war under Commerce Department Resolution No. 150-T-(I) 42, dated the 4th July 1942, in the following words :—

“The Government of India have been approached by a firm, engaged in the manufacture of calcium chloride and anxious to expand its production, with a request for an assurance of post-war protection against unfair competition from abroad. As calcium chloride is required in increasing quantities in connection with War Industries, and as imports thereof are difficult to obtain, the Government of India have, in accordance with their declared policy, decided to give the desired assurance to all those who are either at present engaged in, or wish to undertake, the indigenous manufacture of calcium chloride provided that their affairs are conducted on sound lines.”

Accordingly the claim of calcium chloride along with that of certain other industries for assistance or protection during the transition period was referred to the Tariff Board for investigation in terms of the Department of Commerce, Resolution No. 218-T-(55)/45, dated the 3rd November 1945 (Appendix I) which also announced the constitution and terms of reference of the present Tariff Board.

2. The genesis of the present Tariff Board is to be found in a statement of Government's industrial policy published by the Government of India on the 21st April 1945. In paragraph 6 of the statement, Government observe :—

“The formulation of a tariff policy appropriate to the post-war need and conditions of the country is under active consideration. The subject, however, is one of great complexity, and will require a little further time for the Government of India to determine its policy and devise the machinery for implementing it. In the meantime, the position of industries which have been established or developed in wartime requires consideration. Some of these are covered by the announcement made in 1940 in regard to the grant of an assurance of post-war protection to essential wartime industries. Outside the scope of this announcement, however, lie a large number of industries which have helped to sustain the national economy during an exceptionally difficult period. The provision of assistance to or protection of such of these industries as have been established on sound lines is likely to assume a measure of urgency during the period of transition. Government propose to set up machinery without delay for the investigation of the claims of such industries for assistance or protection

3. In accordance with this policy the Tariff Board was constituted by resolution of the Department of Commerce dated 3rd November 1945. By its terms of reference the Board is required after such examination as is considered necessary to report whether the industry applying for protection satisfied the following conditions :—

- (1) that it is established and conducted on sound business lines ; and
- (2) (a) that, having regard to the industrial or economic advantages enjoyed by the industry and its actual or probable cost, it is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or State assistance ; or
- (b) that it is an industry to which it is desirable in the national interest to grant protection or assistance and that the probable cost of such protection or assistance to the community is not excessive.

It is only when an industry has satisfied condition (1) and condition (2) (a) or (b), that it can be said to have established a claim for protection or assistance. It can be seen that the necessary conditions which an industry must fulfil to become eligible for protection or assistance are somewhat different from the conditions laid down in the Majority Report of the Fiscal Commission, which formed the basis of the terms of reference to the previous Tariff Boards.

4. The conditions of protection as stated by the Fiscal Commission were

Discriminating protection.

as follows :—

“(1) The industry must be one possessing natural advantages such as abundant supply of raw material, cheap power, a sufficient supply of labour or a large home market. Such advantages will be of different relative importance in different industries but they should all be weighed and their relative importance assessed. The successful industries of the world possess certain comparative advantages to which they owe their success. No industry which does not possess some comparative advantages will be able to compete with them on equal terms and, therefore, the natural advantages possessed by Indian industry should be analysed carefully in order to ensure as far as possible that no industry is protected which will become a permanent burden on the community.

(2) The industry must be one which without the help of protection either is not likely to develop at all or is not likely to develop so rapidly as is desirable in the interests of the country. This is an obvious corollary from the principles which have led us to recommend protection. The main object of protection is either to develop industries which otherwise would not be developed or to develop them with greater rapidity.

(3) The industry must be one which will eventually be able to face world competition without protection. In forming an estimate of the probabilities of this condition being fulfilled, the natural advantages referred to in condition (1) will, of course, be considered carefully. The importance of this condition is obvious. The protection we contemplate is a temporary protection to be given to industries which will eventually be able to stand alone.”

The policy of protection based on the conditions formulated by the Fiscal Commission has been known as discriminating protection. The discrimination lies in the fact that not all industries are eligible for protection but only those that satisfy certain specified conditions. Though it is generally agreed that every industry cannot be indiscriminately protected, the rigid manner in which the policy has been administered has been the subject of some criticism.

5. The fact that in constituting the present Tariff Board the Government of India have somewhat modified the conditions as originally laid down by the Fiscal Commission may be taken as an indication of the adoption of a more liberal policy in determining the question of protection to Indian industries. In interpreting and applying these terms to the cases of the specific industries which are examined by the Board, the Board has naturally taken into consideration the background of the constitution of the Tariff Board and the general industrial policy of the Government as enunciated in the statement of April 1945. The constitution of the present Board may be reasonably construed as one of the first steps taken by the Central Government in implementing their industrial policy. It is stated in clear terms that "Government have decided to take positive steps to encourage and promote the rapid industrialisation of the country to the fullest extent possible." The threefold objectives of industrialisation are also indicated, *viz.*, (1) "to increase the national wealth by the maximum exploitation of the country's resources," (2) "to make the country better prepared for defence," and (3) "to provide a high and stable level of employment." In interpreting the terms of reference the Board has naturally kept in view the fundamental objectives of Government policy, and in their light has interpreted and applied the terms of reference in the most liberal manner possible consistent with the interests of the consumers and the general economic prosperity of the country.

6. The application of the first condition enunciated in the terms of reference does not ordinarily present any difficulty. It is possible in a way to ascertain whether an industry is established and conducted on sound business lines, though there are no criteria of efficiency having uniform applicability in all cases. It will be readily agreed that an industry which seeks the assistance of the State so as to impose a burden on the community even for a short period must satisfy this elementary criterion. Apart from this, the main test which the Board is called upon to apply is to find out whether the industry in question is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or State assistance. Even in normal times it would be extremely difficult to arrive at a finding of any accuracy regarding the applicability of this condition. It is difficult to estimate with sufficient precision whether an industry will be able to stand on its own legs after the lapse of a stated time. For one thing the evil of import prices itself may vary considerably during a specified period. The economies in the cost of production of the home manufacturer will necessarily depend on many uncertain factors which it would be extremely difficult to forecast with accuracy. In the abnormal conditions prevailing in the world to day this task becomes even more difficult. The home manufacturer is to day producing under conditions of inflated price levels. It is not easy to anticipate what changes will occur in the level of prices of raw materials, fuel and power and in the cost of labour during the next few years. Under these conditions the Board can only

attempt to assess in general terms what the competitive capacity of a particular industry is likely to be in the near future. The very fact that the Board has been instructed to make its recommendations for protection or assistance for a period not exceeding three years is an indication of the intention of the Government that the steps now contemplated are to be considered only as part of a short range-policy. Unless an industry suffers from inherent economic handicaps, which cannot be remedied, there would be a *prima facie* case for keeping alive the industry until a fuller and more detailed examination is undertaken at a later stage as part of a long-term policy of protection.

7. Even where an industry fails to establish a *prima facie* case based on the condition referred to above, the Board has been instructed to examine whether "it is an industry to which it is desirable in the national interest to grant protection or assistance, and that the probable cost of such protection or assistance to the community is not excessive." In applying this test also the Board has adopted a liberal interpretation and has not confined the interpretation of the term "national interest" exclusively to military and defence considerations. Here again the declared policy of the Government to promote the rapid industrialisation of the country to the fullest possible extent has been kept in view and the Board has attempted to assess whether the protection of a particular industry can be justified in the light of this policy.

8. As already indicated, the Board's recommendation for protection or assistance is to be limited to a period not exceeding three years. In view of this and also in view of the fact that a large number of miscellaneous industries have been referred to the Board for examination, the nature of the enquiry conducted by the Board had necessarily to be of a summary nature. The main criterion which the Board had in view was to decide whether there was a fair case for protecting an industry and keeping it alive until a fuller inquiry is undertaken under more normal conditions. In view of the danger of severe competition by the removal of import controls, the Board had to arrive at decisions in the shortest possible time. All these factors explain the summary nature of the present inquiry.

9. The Board was severely handicapped in the task of collecting the necessary data and statistics regarding industries, imports, c.i.f prices, etc. Many of the articles covered by the present enquiries do not appear separately in the publications of sea-borne trade accounts, being grouped under miscellaneous items. Also, complete information regarding the names and addresses of domestic manufacturers of several commodities and their rated production capacity is not easy to compile. It is hoped that when the Industrial Statistics Act is in full operation, more accurate data will be easily available in such matters. In view of the importance of such data for the successful functioning of any Tariff Board, we would strongly urge the need for the preparation and maintenance of the necessary statistics.

10. On the 28th November 1945 the Board issued a press communique inviting associations, firms or persons interested in the industries referred to the Board or dependent upon these industries for their raw materials or as importers of their products, who desired their views to be considered by the Board, to submit

representations in the matter. Having regard to the fact that many of the industries referred to the Board are relatively small industries in respect of which published statistics are not available and in view of the need for gathering the essential facts for a preliminary examination of the case for assistance or protection with the minimum possible delay, the press communique required representations submitted by industries to be supported by facts and figures regarding—

- (1) annual consumption of the commodity in India for three years immediately preceding the war, and for the last three years ;
- (2) quantity of indigenous production for the same period as in (1) ;
- (3) quantity of imports for the same period as in (1) ;
- (4) the pre-war and the present cost of production of the indigenous commodities ;
- (5) the pre-war and the present landed cost of imported commodities ;
- (6) what duties are at present levied on these commodities ;
- (7) difficulties, if any, encountered by the industry ;
- (8) the exact nature, form and duration of assistance or protection desired ;
- (9) how long the industry has been in existence ; balance sheets of the last five years and general financial position of the company ;
- (10) prospects of the industry in combating world competition on the expiry of protection ; and
- (11) any special features of the industry which may call for specific action.

The communique also invited separate representations on grounds of urgency for the purpose of *enquiry* by the Board.

11. In the last week of December, a questionnaire for chemical industries was sent to a large number of chemical manufacturing firms including those which were likely to be interested in the manufacture of calcium chloride, and replies were required by the 31st January 1946. All local Governments and Administrations were addressed and requested, besides giving their views, to furnish the Board with full information regarding the works or factories engaged in the production of the articles referred to the Board, their estimated annual output, availability of raw materials for these industries within the Province/ Administration, sources and character of demand, possibilities of expansion or stabilisation of the present development and likely effect of the grant of protection to these industries on other industries using their products. In addition, the Directors of Industries of all provinces were requested to supply the Board, in advance of the fuller replies by the Provincial Governments, with certain minimum essential information regarding the productive capacity and actual output of the firms in production in their Province/Administration, to enable the Board to determine its programme with regard to the examination of the case of each industry. The views of Chambers of Commerce and Associations were invited in a circular letter. Since many of the industries referred to the Board were started or considerably developed during the war, often under the direct stimulus of Government orders, the Supply Department was requested to let the Board have memoranda giving such information available with them regarding the industries' present state of development and prospects as might be of use to the Board in their investigation.

12. In a communication dated the 20th December 1945, the Pioneer Magnesia Works, which is the sole applicant for assistance or protection to the calcium chloride industry, requested urgent consideration of this case. It is the only firm which has submitted a reply to the questionnaire, being practically the only manufacturers of this chemical in the country. In January, the Board paid a visit to the factory of the Pioneer Magnesia Works at Kharaghoda and to the Salt Works at that place with a hinterland having a large and rich supply of bitterns which is the base of the chemicals produced at the Pioneer Magnesia Works. The oral evidence of the firm on the application for protection was recorded at Bombay on the 25th and 26th February, when a representative of the consuming industries was also examined, besides representatives of the Bombay and Indian Chemical Manufacturers' Associations. The representatives of both these Associations supported the application for protection of the industry. No objections were received in response to the press communique issued by the Board, to the grant of assistance or protection to this industry.

13. The producing firm, the Pioneer Magnesia Works, Ltd., a private limited company, has been established since 1915 for the production of magnesium chloride which was the subject of enquiry by three previous Tariff Boards in 1925, 1929 and 1938. The magnesium chloride industry has now become stabilised. The manufacture of calcium chloride by this company was first started at the Kharaghoda Works in 1941 when imports, which averaged 836 tons in the three pre-war years from 1936-37 to 1938-39, showed a perceptible decline to 656 tons (1941-42), and the need for local production began to press. The industry came into being as a pure war industry resulting from certain successful experiments conducted by the Industries Department, Bombay, and the Department of Chemical Technology of the Bombay University. Subsequently, the Chief Controller of Purchase (Supply) entered into a rate contract with the firm at the instance of the Director-General of Supply for one year as from the 1st October 1942 for about 700 tons of calcium chloride for meeting the defence requirements and suitable transport and priority assistance was given for the fuel and other raw materials required. Meanwhile, imports dwindled to insignificance and the local production met almost the entire demand from urgent users, roughly one-half of the aggregate domestic supply being taken up for military use. The reopening of former sources of supply from overseas and the decline of defence demands present the problems of readjustment of the industry to peace-time conditions and of the regulation of foreign competition during the transition period while the industry is engaged in improving its efficiency and methods and attaining a new equilibrium.

14. Calcium chloride can be obtained (a) by the action of lime on
The process of pro-
duction. magnesium chloride, and (b) as a by-product.

(a) *By the action of lime on magnesium chloride.*

The most important natural source of magnesium chloride is the bitterns or mother liquor left after the manufacture of salt by solar evaporation from sea water, which contains about 2 per cent. magnesium chloride. Kharaghoda bitterns are particularly rich in this chemical containing up to $4\frac{1}{2}$ per cent. of magnesium chloride on the basis of brine. Messrs. Pioneer Magnesia Works have been manufacturing magnesium chloride from bitterns obtained at Government Salt Works for the last 30 years and they have now used this as a raw material for the manufacture of calcium chloride during the war. The process consists of adding

lime to magnesium chloride. The chemical reaction results in giving a solution of calcium chloride and a pasty precipitate of magnesium hydroxide. In the beginning, the hot process was adopted by this firm; but later on it was found that the reaction between magnesium chloride and lime was fairly satisfactory even at ordinary temperatures with consequent economy in fuel. It was also found that concentrated bitters could be directly used instead of concentrated magnesium chloride solution, resulting in additional saving of fuel. The calcium chloride solution is separated by means of settling and/or filtering the mixture through filter presses. The clear calcium chloride solution is then concentrated in open pans and at about 160°C. is poured into steel drums. On cooling, it solidifies and contains roughly 80 per cent. to 90 per cent. $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$.

(b) *As a by-product.*

As a by-product the important sources of calcium chloride are :—

(i) the waste product in the manufacture of chlorine by the Weldon process. This process does not appear to have been followed so far in India;

(ii) the liquor obtained in the manufacture of potassium chlorate. Messrs. Mettur Chemical and Industrial Corporation have utilised their waste liquor containing calcium chloride mainly for the manufacture of barium chloride required for purification of brine for their alkali plant;

(iii) the waste liquor in the manufacture of soda ash by the Solvay process. In India this method was adopted by Messrs. Dharangdhra Chemical Works during the war on a small scale. Messrs. The Tata Chemicals are also undertaking in the near future manufacture of soda ash by this process, but they have informed us that they do not propose to manufacture calcium chloride in the immediate future. This process of manufacturing calcium chloride as a by-product in the manufacture of soda ash is commonly adopted in other parts of the world.

15. Calcium chloride is mainly used in the manufacture of ice as well as for purposes of refrigeration, air-conditioning and dehydration.

Uses of the product. It is also used in the leather industry and in the manufacture of cement fibre boards and as a raw material in the manufacture of barium chloride. It is used in solution for watering roads to bind the dust down. It has not been possible to obtain accurate figures regarding the quantities of calcium chloride used for each of the purposes enumerated above. The main demand seems to be for the manufacture of ice and as a refrigerating agent.

16. Since there was no production of calcium chloride in India before the war, the annual consumption can be inferred from the quantities imported. The average annual imports for the three years 1936-37 to 1938-39 were approximately 850

Consumption.

tons. This figure can, therefore, be taken to represent the normal pre-war annual consumption of this chemical. During the war there was a heavy demand for defence purposes to the extent of about 500 tons per year. It is difficult to make an estimate of what the future Indian demand is likely to be. The demand for refrigeration is likely to increase steadily with the introduction of cold storage arrangements on a large scale. With the progress contemplated

in road making and the extensive programmes for providing better class roads, the use of calcium chloride as a solution for binding the dust is also likely to increase in course of time. We have assumed that for the next three years the demand may possibly go up to 1,500 to 2,000 tons per annum.

17. The figures of imports of calcium chloride since 1936-37 are given below :—

			Cwts. (000's)
1936-37	..	..	14·82 (excluding imports into Burma).
1937-38	..	..	18·21
1938-39	..	..	17·11
1939-40	..	..	20·98
1940-41	..	..	13·28
1941-42	..	..	13·12
1942-43	..	..	7·22
1943-44	..	..	0·23
1944-45	..	..	0·28
1945-46 (8 months from April to November 1945).			0·64

After 1941-42, the imports show a sharp decline. In 1942-43, total imports were only 7,220 cwts. and in the subsequent years this became almost negligible. Practically the whole of the imports came from the United Kingdom except for insignificant quantities from Germany and Japan (*vide* Appendix IV). It appears that these small quantities are of a special quality of the chemical required for special purposes and not the ordinary commercial quality. In 1942-43, some imports came from the U.S.A.

18. As mentioned above, the Indian production of calcium chloride was really started by the Pioneer Magnesia Works at Kharaghoda in 1941. During the war, the import of this chemical was curtailed and ultimately imports ceased chiefly because of the difficulty of containers. The domestic manufacture of the chemical therefore became a necessity. The Government had to arrange with the Kharaghoda Works for the supply of calcium chloride for defence and other requirements. The total quantity produced at Kharaghoda since 1941 is shown below :—

			Tons.
1941	..	..	249
1942	..	..	801
1943	..	..	894
1944	..	..	831
1945	..	..	791

Besides the Kharaghoda Works, the Mettur Chemical Industries and the Dhrangdhra Chemical Works have produced small quantities of calcium chloride. These are

negligible and need not be taken into account for our purpose. The Kharaghoda Works have been able to supply the Indian demand during the war years. They are capable of producing 1,000 to 1,200 tons yearly and are therefore in a position to supply the present Indian demand. It would be easy to step up the production still further in case there is an increase in the home demand during the next two or three years. It may be said that the production at Kharaghoda Works for the present is mainly governed by the volume of demand. A very large quantity of bitterns which is the principal raw material is available at Kharaghoda. The main handicaps in the way of stepping up production are the high cost of lime and fuel and the absence of electric supply. As indicated elsewhere in the report, efforts have been made by the manufacturers to overcome these handicaps by using furnace oil as fuel instead of firewood, and by improving the quality of the lime and reducing its cost.

19. The Pioneer Magnesia Works manufacture at their Kharaghoda Works other chemicals besides calcium chloride, of which

Cost of production. magnesium chloride is the most important. They do not maintain separate accounts for the manufacture of calcium chloride. Many items of cost are therefore common to all the chemicals and estimates have to be made for the allocation of costs under certain heads for calcium chloride.

20. On the basis of a production of about 800 tons in 1945, the Company has worked out its cost of production of calcium chloride at Rs. 18-7-0 per cwt. This cost is excessively high. The main items that have contributed to the high cost are the costs of fuel and lime. The Company has been using firewood which has cost Rs. 2-2-0 per maund. The cost of lime at the factory also has been excessive, the railway freight alone on limestone being Rs. 13 per ton. If the 1945 cost were, to continue, it would be very difficult for the industry to survive. The manufacturers, however, have as a result of experience and research introduced improvements which are expected to bring down the cost of production in 1946 very considerably. They propose to use furnace oil in place of firewood which will reduce the cost of fuel. They have also arranged to have their own lime kiln which would yield a better grade of lime of higher strength and thereby help to reduce cost. They are adopting the cold process instead of the hot process previously used which again results in considerable saving of fuel and labour charges. They have also started manufacturing calcium chloride directly from bitterns instead of from magnesium chloride. This change also is calculated to reduce the costs.

21. On the basis of these improvements, the manufacturers have given their estimated cost of production of 1 cwt. of calcium chloride in 1946 as follows on the assumption of an estimated production of 900 tons :—

I. Manufacturing expenses—

				Rs.	a.	p.
(1) Raw materials—bitterns and lime	..	..	..	3	0	0
(2) Power and fuel .. .. .	..	..	..	4	2	0
(3) Repairs and maintenance .. .. .	..	..	..	1	0	0
(4) Labour .. .. .	..	..	..	2	12	0

				Rs.	a.	p.
(5)	General services	..	..	..	0	5 0
(6)	Quality control and research	..	..	..	0	2 0
(7)	Packing	..	..	..	1	0 0
(8)	Water, lighting, royalties, etc.	..	..	..	0	1 0
II. Overhead charges—						
(9)	Depreciation	..	..	..	0	12 0
(10)	Interest on working capital	..	..	..	0	3 6
(11)	Insurance	..	..	..	0	1 0
(12)	Rent, rates, etc.	..	..	..	0	0 3
(13)	Selling expenses	..	..	..	0	8 0
(14)	Miscellaneous	..	..	..	0	4 0
Total				..	14	2 9

22. The Board has examined each item of the costs as given above by the manufacturers and have come to the conclusion that **Board's estimate of further reductions in cost are possible. A production of 1,000 tons has been assumed. The cost of bitters has been reduced by 2 annas as the manufacturers agreed with the Board that 3 cwts. of bitters at 2 annas per cwt. will be sufficient for manufacturing 1 cwt. of calcium chloride as against 4 cwts. of bitters assumed by the manufacturers. We have allowed 10 annas for repairs and maintenance. The general services charges however have been reduced to Re. 0-3-6, the provision for depreciation at statutory rates has been reduced to 8 annas, and the interest on working capital, of Rs. 30,000 at 4 per cent., to 1 anna. The item relating to selling expenses has been cut down to 4 annas. Based on these reductions, the Board has arrived at the following estimated cost of production of 1 cwt. of calcium chloride in 1946 :—**

BOARD'S ESTIMATE OF COST OF PRODUCTION OF 1 CWT. OF CALCIUM CHLORIDE IN 1946.

I. Manufacturing expenses—

				Rs.	a.	p.
(1)	Raw materials—bitters and lime	..	..	..	2	14 0
(2)	Power and fuel	..	..	..	4	2 0
(3)	Repairs and maintenance	..	..	..	0	10 0
(4)	Labour	..	..	..	2	12 0
(5)	General services	..	..	..	0	3 0
(6)	Quality control and research	..	..	..	0	2 0
(7)	Packing	..	..	..	1	0 0
(8)	Water, lighting, royalties, etc.	..	..	..	0	1 0

II. *Overhead charges—*

				Rs.	a.	p.
(9) Depreciation	..	..	..	0	8	0
(10) Interest on working capital..		..	..	0	1	0
(11) Insurance	..	..	..	0	1	0
(12) Rent, rates, etc.	..	..	..	0	0	3
(13) Sellings expenses	..	..	..	0	4	0
(14) Miscellaneous	..	..	..	0	4	0
Total				12	14	9

The Board has thus arrived at Rs. 12-14-9 as the cost of production of 1 cwt. of calcium chloride in 1946.

23. Though the estimated cost of production in 1946 is below the cost in 1945, there should be a still further reduction in subsequent years if the industry expects to survive. Fortunately, it is possible to reduce the costs still further. With a better quality of lime there is a further possibility of reduction under this item. The price of furnace oil may also reasonably be expected to go down. A reduction in labour charges is also possible. The price of packing drums may also be expected to come down. There is one other factor which should appreciably reduce the manufacturing cost of calcium chloride. Basic light magnesium carbonate can be produced as a by-product in the manufacture of calcium chloride. The Pioneer Magnesia Works have agreed that they would be in a position to manufacture this by-product from 1947 onwards. The credit to be given for this item should be not less than Rs. 2-8-0 per cwt. of calcium chloride produced. Since the production of basic light magnesium carbonate cannot be expected to be in full operation before the middle of 1947, we have taken a credit of Rs. 2 under this item as an average saving per year for three years beginning from 1947. Based on these calculations the Board estimates the average cost of production from 1947 onwards as follows :—

BOARD'S ESTIMATE OF COST OF PRODUCTION OF 1 CWT. OF CALCIUM
CHLORIDE FROM 1947.

I. *Manufacturing expenses—*

				Rs.	a.	p.
(1) Raw materials—bitterns and lime	..	..	..	2	6	0
(2) Power and fuel	..	..	..	4	0	0
(3) Repairs and maintenance	..	..	..	0	10	0
(4) Labour	..	..	..	2	4	0
(5) General services	..	..	..	0	3	6
(6) Quality control and research	..	..	..	0	2	0
(7) Packing	..	..	..	0	12	0
(8) Water, lighting, royalties, etc.	..	..	..	0	1	0

II. *Overhead charges—*

	Rs.	a.	p.
(9) Depreciation	0	8	0
(10) Interest on working capital ..	0	1	0
(11) Insurance	0	1	0
(12) Rent, rates, etc.	0	0	3
(13) Selling expenses.	0	4	0
(14) Miscellaneous	0	4	0
Total ..	11	8	9
Deduct saving due to production of basic light magnesium carbonate.	2	0	0
	9	8	9

24. There is one other factor which has to be taken into account before finally fixing the cost of production. In our calculation of cost we have proceeded on the assumption that the annual production will be 1000 tons. We have every reason to believe that with the increase in the demand for cold storage arrangements, refrigeration and airconditioning, there will be an increase in the demand for calcium chloride. Since we are attempting to arrive at an average cost of production for a period of three years beginning from 1947, it would be reasonable to base the conclusions on the assumption that more than 1,000 tons per annum would be produced during this period. We therefore feel justified in making a reduction of Re. 0-2-9 per cwt. on this account for this period. We have thus come to the conclusion that the average cost of production to the domestic manufacturer during a period of three years beginning from 1947 will be Rs. 9-6-0 per cwt.

25. We shall now arrive at the fair selling price for the home manufacturer.

We have allowed 10 per cent. on the gross block account as **Fair selling price.** manufacturers' profit. Though it has been the usual practice in many cases in the past to allow profit at the rate of 8 per cent. we have advisedly allowed a higher figure for two reasons:—

(a) In view of the much higher rates of income-tax and company-tax now prevailing, a profit of 10 per cent. cannot be considered to be extravagant.

(b) The chemical industries in India being still in an infant stage and not well-established, there is justification for allowing a somewhat higher rate of profits in order to attract capital. On the basis of a profit of 10 per cent. on a block amount of Rs. 95,000 or say Rs. 1,00,000 a charge of 8 annas per cwt. should be added. This means that the ex-factory price would be Rs. 13-6-9 in 1946 and Rs. 9-14-0 from 1947 onwards. There is one other charge that must be added in order to equalise the position of the home manufacturer with that of the importer. The importer's price is as at the main ports of India. The Pioneer Magnesia Works must be in a position to compete with the imports at Bombay. We have therefore added Rs. 1-6-0 per cwt. being the railway freight from Kharaghoda to Bombay. The fair selling price for the home manufacturer at Bombay will therefore be Rs. 14-12-9 per cwt. in 1946 and Rs. 11-4-0 per cwt. from 1947 onwards.

26. In the pre-war period the c.i.f. price of calcium chloride was about Rs. 4 per cwt. According to the information given to us by one

Price of imports. of the importers, the selling price during the period 1937-38 was Rs. 4-12-0 per cwt. in 5 ton lots and Rs. 5 per cwt. for smaller quantities ex-godown or f.o.r. ports. The selling price includes landing charges, duty and the importer's profit. The price of the imported calcium chloride during the war period has varied considerably and imports have been controlled. The present c.i.f. price is Rs. 151-9-0 per ton at the main Indian ports. To this are to be added Rs. 8 per ton towards landing charges. The present day landed price is, therefore, say, Rs. 160 per ton, or Rs. 8 per cwt. without duty. We have no authentic information about the probable future trend of the price of imported calcium chloride. For the purpose of our inquiry, we must proceed on the assumption that Rs. 8 per cwt. (without duty) is the price against which the home manufacturer has to compete.

27. As regards the measure of protection which the home manufacturer would require, we have considered the question in two parts, namely, (a) the protection required during the current year 1946, and (b) protection required from 1947 onwards. In view of a considerable reduction in the cost of production which may be expected to materialise from 1947, we have thought it better to deal with the question in this manner. In 1946 the fair selling price for the home manufacturer as explained above will be Rs. 14-12-9. The import price without duty is Rs. 8 per cwt. At present calcium chloride is subject to the standard *ad valorem* rate of 36 per cent. with a preferential duty of 24 per cent. *ad valorem* for U.K. Most of the imports in the pre-war years came from the U.K. and that country can be considered as the chief competitor and any protective duty levied must be in relation to the price of calcium chloride imported from the U.K. The existing duty of 24 per cent. *ad valorem* does not offer sufficient protection; the home manufacturer would require a specific duty of Rs. 6-12-9 per cwt. We consider that it is not advisable for the remaining months of 1946 to raise the import duty to this level. We, therefore, recommend that no licences should be given for the import of calcium chloride during the current year 1946. If imports are stopped, it would necessarily follow that a ceiling price should be fixed so that the consumer may get calcium chloride at a reasonable price. We recommend that a ceiling price of Rs. 13-7-0 inclusive of packing ex-factory should be fixed as the ceiling price of calcium chloride for the current year. Steps should be taken to publish this ceiling price for the information of the consumers.

28. For a period of three years beginning from 1947, we recommend that in place of the existing *ad valorem* revenue duty of 24 per cent. on imports of calcium chloride from the U.K., a specific protective duty of Rs. 3-4-0 per cwt., being the difference between the estimated import price of Rs. 8 per cwt. and the fair selling price of the home manufacturer of Rs. 11-4-0 per cwt., should be levied. If there is an obligation to give a preferential rate of duty for U.K. in respect of this commodity, the necessary adjustment in duty must be made on imports from other countries. We recommend a specific duty in preference to an *ad valorem* duty for the reason that, in our opinion, a protective duty should wherever possible be in the form of a specific rather than an *ad valorem* duty. In recommending a specific duty of Rs. 3-4-0 per cwt., we have naturally assumed that the c.i.f. price of calcium chloride imported from U.K. will be Rs. 151 per ton. If the c.i.f. price of imported calcium chloride goes below Rs. 150, we recommend that Government should take proper executive action to alter the protective duty in accordance with section 4 (I) of the Indian Tariff Act, 1934, so as to maintain the measure of protection recommended above.

29. If our recommendation for the levy of a specific duty of Rs. 3-4-0 per cwt. is accepted, it will impose on the consumer of calcium chloride in India an additional burden of Rs. 3-4-0 per cwt. of calcium chloride used. On an analysis of incidence it is found that the extra cost involved in the price of calcium chloride will not add to the burden of the consumer in any appreciable degree. For example, for the manufacture of one ton of ice, about $7\frac{1}{2}$ lbs. of calcium chloride is required for charging the tank initially. Thereafter the quantity of calcium chloride required for recharging the tank is 5 lbs. of calcium chloride for one ton of ice. The extra cost of calcium chloride involved in the increase of price by Rs. 3-4-0 will be a negligible factor in the cost of manufacture of ice. From the evidence tendered before us, we are also satisfied that, so far as quality is concerned the Indian manufacturer gives full satisfaction to the consumers.

30. In the communique of the Government of India quoted at the beginning of the report, the Board has been directed to apply certain criteria to the industries that ask for protection or assistance. The first criterion is whether the industry is managed on sound business lines. Our answer to this question in respect of the calcium chloride industry is in the affirmative. The Pioneer Magnesia Works have been in existence for nearly thirty years, and they have shown considerable enterprise in undertaking the manufacture of various chemicals. For the first twenty years they were concentrating on the production of Magnesium Chloride and they have succeeded in establishing this industry. During the last ten years they have been making research and investigations and have added one product after another. They have been fully alive to the need for research in chemical industry and have incurred certain expenditure on research; this, however, might well be increased in order to improve the processes and to enable a wider range of chemicals to be manufactured so as to reduce the overhead charges. Their methods of production and the general lay-out of their factory cannot be considered to be up-to-date. This is to some extent due to the handicaps that the Company has suffered during the last few years in getting the necessary plant and machinery for re-designing their works and making them up to-date. On the whole, however, the Company may be said to be managed on sound business lines.

31. The next criterion is whether, having regard to the natural or economic advantages enjoyed by the industry and its actual or probable cost, it is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or State assistance. The availability of high quality bitterns from the Government Salt Works at Kharaghoda is a natural advantage. As against this, the manufacturer suffers from the disadvantages of high cost of lime and fuel and absence of electric supply. In spite of these disadvantages, we have shown that the manufacturer would be in a position to produce calcium chloride at Rs. 9-6-0 per cwt. from 1947 onwards. To get a complete picture of the probable costs in the future, certain other factors should be taken into account. The installation of an up-to-date power plant will reduce the cost by at least Rs. 1-12-0 per cwt. of calcium chloride. It will be possible with additional equipment to manufacture bromine as a by-product at the works. It is estimated that 10 tons of bromine can be produced per year which will yield $12\frac{1}{2}$ tons of bromide. Bromide is a very valuable chemical, the price of which is approximately Rs. 1,500 per ton. The manufacture of bromine will, therefore, result in a considerable reduction all round in the cost of manufacture of chemicals at

Kharaghoda. The cost of production of calcium chloride can, therefore, be reasonably expected to go down still further to Rs. 8 per cwt., the present c.i.f. price, when these steps have been taken. When the domestic manufacturer has produced a chemical which compares favourably in quality with the imported chemical and when he is in a position to meet the entire domestic demand for the chemical, and when there is every reasonable prospect as indicated above of his costs coming down to a competitive level, State assistance by means of a protective tariff during the transition period is justified.

32. In recommending protection to this industry, we have had another consideration in view. The method commonly employed in other countries for the manufacture of calcium chloride is that known as the ammonia soda process. There are prospects of development of the soda ash industry on a considerable scale in India. Protection to the calcium chloride industry may encourage the manufacture of soda ash to undertake the production of calcium chloride, and the cost of production by this method may be reasonably expected to be in parity with the cost of production in other countries. It is not possible to say now whether the process adopted by the Pioneer Magnesia Works in the manufacture of calcium chloride can compete with the ammonia soda process. Even if it is found that the present process has to be abandoned, the Pioneer Magnesia Works may be able to survive as a result of reductions in cost by the recovery of by-products like basic light magnesia and bromine and by modernising their plant and equipment. We are also satisfied that the industry on its present basis is capable of expansion if there is an increase in the domestic demand for calcium chloride. The second criterion can, therefore, be said to be satisfied.

33. Our recommendations are:—

Recommendations.

(i) No license should be given for the import of calcium chloride during the current year 1946.

(ii) A ceiling price of Rs. 13-7-0 per cwt. (inclusive of packing) ex-factory should be fixed for the current year 1946.

(iii) Beginning from 1947 a specific protective duty of Rs. 3-4-0 per cwt. should be levied on the imports of calcium chloride from the U.K. The duty should be in force for a period of 3 years.

(iv) If the c.i.f. price of calcium chloride imported from the U.K. goes below Rs. 150 per ton, action should be taken under section 4 (I) of the Indian Tariff Act, 1934, to adjust the duty so as to maintain the measure of protection recommended by us.

(v) The Pioneer Magnesia Works are not in a position to undertake certain long-term improvements in view of the fact that their lease with the Government of India for the use of bittorns expires by the end of 1953. If a lease is given for a reasonably long period, it should be possible to reduce still further the cost of production of calcium chloride by the installation of new and up-to-date plant and machinery. It is, therefore, recommended that the question of granting such a long-term lease either to this or any other agency should be taken up for consideration as soon as possible to facilitate a more economical exploitation of the chemical contents of the Kharaghoda bittorns.

(vi) The manufacture of salt at Kharaghoda is at present carried on directly by the agency of the Central Government, while the manufacture of the chemicals is carried on by the Pioneer Magnesia Works. There is a reasonable prospect of the production of a variety of chemicals at competitive prices if all the operations including the manufacture of salt and the manufacture of the chemicals are carried on by the same agency. This aspect of the problem deserves immediate expert investigation.

(vii) The Pioneer Magnesia Works is a private limited company. A previous Tariff Board recommended in the year 1938 that the company should convert itself into a public limited Company. This recommendation which we endorse should be acted upon. The Company carries on trading activities also besides the manufacture of chemicals. They must separate these two activities and keep separate accounts for the manufacturing side and for the trading side.

34. We wish to place on record our appreciation of the valuable help received in the technical aspects of the inquiry from Dr. J. N. Ray, D.Sc., Development Officer, Department of Industries and Supplies, who was deputed to assist us in the final stages of our work on the industry. We also wish to place on record the excellent work of our Deputy Secretary Dr. Madan whose work was helpful to us at every stage of our enquiry.

(Sd.) SHANMUKHAM CHETTY—President.

(Sd.) C. C. DESAI—Member-Secretary.

(Sd.) NAZIR AHMAD—Member.

(Sd.) H. L. DEY—Member.

(Sd.) B. K. MADAN, Deputy Secretary.

Bombay, 2nd April 1946.

APPENDICES

APPENDIX I.—Department of Commerce Resolution No. 218-T-(55)/45, dated the 3rd November 1945.

APPENDIX II.—List of firms to which questionnaire was issued.

APPENDIX III.—List of witnesses examined and the dates on which they were examined.

APPENDIX IV.—Statement showing quantity, value and average value per cwt. of imports of calcium chloride into India since 1936-37, and import duty.



APPENDIX I

DEPARTMENT OF COMMERCE.

RESOLUTION.

TARIFFS.

New Delhi, the 3rd November 1945.

No. 218-T (55)/45.—In the statement on industrial policy issued by the Government of India on the 23rd April 1945, it was announced that, pending the formulation of a tariff policy appropriate to the post-war needs and conditions of the country and the establishment of permanent machinery for the purpose, Government would set up machinery for investigating claims from industries, which have been started or developed in war-time and which are established on sound lines, to assistance or protection during the transition period. A press communique issued on the same date invited industries to address their claims to the Secretary to the Government of India in the Department of Commerce.

2. Several industries have accordingly applied for assistance or protection and on a preliminary examination of their claims, the Government of India have come to the conclusion that applications submitted by the following industries call for a detailed examination

- (i) non-ferrous metals, including antimony ;
- (ii) grinding wheels ;
- (iii) caustic soda and bleaching powder ;
- (iv) sodium thiosulphate, sodium sulphite anhydrous, sodium bisulphite ;
- (v) phosphates and phosphoric acid ;
- (vi) butter colour, aerated water powder colour ;
- (vii) rubber manufactures ;
- (viii) fire hose ;
- (ix) wood screws ;
- (x) steel hoops for baling.

Other applications are under the consideration of Government, and further action in their case will be taken in due course.

3. In addition to the industries which have applied for assistance or protection, there are certain industries the starting of which was considered essential by the Government of India under conditions created by the war. Early in 1940, Government announced that specified industries promoted with their direct encouragement during war-time might feel assured that, if they were conducted on sound business lines, they would, by such measures as Government might devise, be protected against unfair competition from outside India. In accordance with

this decision, the following industries have been given an assurance of protection against unfair competition after the war.—

- (i) bichromates ;
- (ii) steel pipes and tubes up to a nominal bore of 4 inches ;
- (iii) aluminium ;
- (iv) calcium chloride ;
- (v) calcium carbide ;
- (vi) starch.

Of these industries, only those engaged in the manufacture of bichromates, calcium chloride and starch have so far applied for assistance or protection during the transition period. The Government of India consider that the applications submitted by these three industries also call for immediate investigation.

4. For the purpose of these and any subsequent investigations, the Government of India have decided to set up a Tariff Board for a period not exceeding two years, in the first instance. The Board will consist of :—

PRESIDENT :

Sir R. K. Shanmukham Chetty, K.C.I.E.

MEMBERS :

Mr. C. C. Desai, C.I.E., I.C.S.

Professor H. L. Dey, D.Sc. (London).

The Board will include one more Member whose name will be announced shortly. Mr. Desai will act as Secretary to the Board in addition to his duties as Member.

5. The Tariff Board is requested to undertake, in such order as it thinks fit, the investigation of claims put forward by the industries specified in paragraphs 2 and 3 above. In the case of each industry the Board will, after such examination as it considers necessary, report whether the industry satisfies the following conditions.—

(1) that it is established and conducted on sound business lines ; and

(2) (a) that, having regard to the natural or economic advantages enjoyed by the industry and its actual or probable costs, it is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or State assistance ; or

(b) that it is an industry to which it is desirable in the national interest to grant protection or assistance and that the probable cost of such protection or assistance to the community is not excessive. Where a claim to protection

or assistance is found to be established, i.e., if condition (1) and condition (2) (a) or (b) are satisfied, the Board will recommend—

(i) whether, at what rate and in respect of what articles, or class or description of articles, a protective duty should be imposed ;

(ii) what additional or alternative measures should be taken to protect or assist the industry ; and

(iii) for what period, not exceeding three years, the tariff or other measures recommended should remain in force.

In making its recommendations the Board will give due weight to the interests of the consumer in the light of the prevailing conditions and also consider how the recommendations affect industries using the articles in respect of which protection is to be granted. Since relief, to be effective, should be afforded without delay, the Board is requested to complete its enquiries with all possible expedition and to submit a report as soon as the investigation of the claim of each industry is concluded.

6. The headquarters of the Board will be at Bombay, but it will visit such other places as it thinks necessary for purposes of its enquiries. Firms and persons interested in any of these industries, or in industries dependent on the use of the products of these industries, who desire that their views should be considered, should address their representations to the Secretary to the Board.

7. Any claims hereafter received from other industries which in the opinion of the Government of India are suitable for examination by the Board will be referred to the Board in due course for examination.

8. The Government of India trust that Provincial Governments and Administrations will afford the Board all the assistance which it may require and will comply with any request for information which may be addressed to them by it.

ORDER.

ORDERED that a copy of this Resolution be communicated to all Provincial Governments, all Chief Commissioners, the several Departments of the Government of India, the Political Department, the Private and Military Secretaries to His Excellency the Viceroy, the Central Board of Revenue, the Auditor General; the High Commissioner for India in London, the Economic Adviser to the Government of India, the Director of Commercial Intelligence, Calcutta, the Indian Trade Commissioner, London, the Indian Government Trade Commissioners at New York, Buenos Aires, Toronto, Alexandria, Mombasa, Tehran and Sydney, His Majesty's Trade Commissioner in India, the American Consulate General, Calcutta, the Canadian Trade Commissioner in India, the Australian Trade Commissioner in India, the Secretary, Tariff Board, Bombay, and all the recognised Chambers of Commerce and Associations.

ORDERED that a copy be communicated to the Government of Burma.

ORDERED also that it be published in the *Gazette of India*.

N. R. PILLAI,

Secretary.

APPENDIX II

List of firms to which Questionnaire was issued.

BENGAL :

1. Metropolitan Chemical Industries, Calcutta.

BOMBAY :

2. Pioneer Magnesite Works, Kharaghoda (Ahmedabad).
3. Vasant Vijay Mills, Bombay.

MADRAS :

4. Mettur Chemicals and Industrial Corporation Ltd., Mettur (Salem District).

UNITED PROVINCES :

5. National Chemical Co., Benares,

STATES :

BARODA :

6. Tata Chemicals Ltd., Mithapur.

KATHIAWAR :

7. Dhrangadhara Chemical Works, Dhrangadhara.

APPENDIX III

List of witnesses examined and the dates on which they were examined.

Name.

Date.

Manufacturer :

B. S. Ialkaka, Esq., Messrs. Pioneer Magnesia Works, Ltd., Kharaghoda.	25th February 1946 and 26th February 1946.
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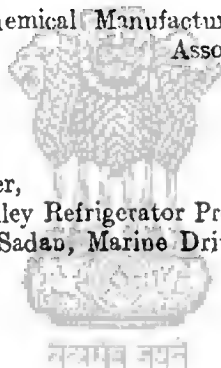
Manufacturers' Associations :

Messrs. Purnushotamdass Popatlal and H. S. Ramanathan, representing Indian Chemical Manufacturers' Association. (Calcutta and Bombay).	25th February 1946.
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Dr. L. A. Bhatt, Bombay Province Chemical Manufacturers' Association.	Do.
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Consumers :

M. K. Kothawalla, Esq., (Ex-General Manager, The Narbada Valley Refrigerator Products), Jyoti Sadan, Marine Drive, Bombay.	26th February 1946.
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APPENDIX IV

Statement showing quantity, value and average value per cwt. of imports of calcium chloride into India since 1936-37, and import duty.

From :		1936-37.	1937-38.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46
I. (a) Quantity—											
(1) U.K.	(Cwt. 000's)	16.65	17.88	14.12	18.14	12.83	9.54	0.17	0.23	Not available	Not available
(2) Germany	"	0.14	0.45	0.60	0.06	..	..	..	..	..	..
(3) Belgium	"	..	..	1.51	..	..	..	..	..	..	..
(4) Japan	"	1.58	0.01	0.74	2.68	0.23	0.80	..	..	..	..
(5) U.S.A.	"	..	..	..	..	0.03	2.76	7.05	..	..	..
(6) Other countries	"	..	0.07	0.14	0.10	0.19	0.02	..	..	..	..
(7) Total imports	"	14.82†	18.21	17.11	20.98	13.28	13.12	7.22	0.23	0.28	0.64
(b) Value—											
(1) U.K.	(Rs. 000's)	70.48	62.71	62.36	87.09	75.75	59.36	14.56	16.80	Not available	Not available
(2) Germany	"	2.07	7.89	7.19	0.71	..	..	..	..	..	..
(3) Belgium	"	..	..	5.49	..	..	..	..	..	..	..
(4) Japan	"	5.18	0.30	3.65	14.64	2.42	4.41	..	..	..	..
(5) U.S.A.	"	..	..	..	..	0.29	22.05	65.48	..	..	..
(6) Other countries	"	0.34	1.23	1.40	0.51	1.20	0.07	..	0.10	..	..
(7) Total imports	"	59.42†	72.13	80.09	102.95	79.68	85.89	80.04	16.90	..	..

Statement showing quantity, value and average value per cwt. of imports of calcium chloride into India since 1935-37, and import duty.

(M) Average value of imports per cwt.—	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
(1) U.K.	..	4 4	3 9	4 7	4 13	5 14	6 4	85 10	73 1	Not available.	Not available.	Rs. a.
(2) Germany	..	15 4	17 11	12 1	11 10	..	..	..	..	..	..	Rs. a.
(3) Belgium	3 10	..	..	..	..	..	..	..	Rs. a.
(4) Japan	..	3 5	42 5	4 14	5 7	10 8	5 8	..	..	..	..	Rs. a.
(5) U.S.A.	10 12	8 0	9 5	..	..	..	Rs. a.
(6) Average value of total imports per cwt.		4 0	3 15	4 11	4 15	6 0	6 9	11 1	72 14	72 1	27 13	

*For 8 months from April to November 1945.

†Excluding imports into Burma.

II. Import duty as in force on 1st January 1946 :—

(1) Standard rate ..	..	..	..	36 per cent. ad valorem.
(2) Imports from the U.K. ..	..	..	24	..
(3) Imports from Burma ..	..	..	12	..